

Technical white oil

Safety Data Sheet

According to Regulation (EU) 2015/830 (REACH Annex II)

Date of issue: 6/07/2018

Revision date: 6/07/2018

Version: 1.0



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
Trade name : Technical white oil

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Technical white oil

1.2.2. Uses advised against

Restrictions on use : No information available

1.3. Details of the supplier of the safety data sheet

Supplier : PetroChina Karamay Petrochemical Company
Address : No.5680, Pingbeiliu Road, Karamay, Xinjiang uygur autonomous region
Tel. : +86-990-6991502
Fax : +86-990-6992118
E-mail :

Importer : Ningbo Shaishu Kanghua Plastic Upholstering Factory

Address : Gulin town, Shaishu, Ningbo, Zhejiang, P.R.C
Tel. : +86-574-28857990
Fax : +86-574-28857998
E-mail : Kanghua100year@163.com

1.4. Emergency telephone number

+36 34 526 210 (CET) on workdays
Health Toxicological Information Service (ETTSZ 1096 Budapest, Nagyvárad tér 2.)
Tel.: 36 80 201 199 (0-24 h, free number).

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Not classified

Adverse physicochemical, human health and environmental effects

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

No labelling applicable

Hazard pictograms (CLP) : None
Signal word (CLP) : None
Hazard statements (CLP) : Not applicable
Precautionary statements (CLP) : Not applicable
EU Specific Hazard Statements : None

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures



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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
1.White mineral oil, petroleum	(CAS-No.) 8042-47-5 (EC-No.) 232-455-8	<= 70	Asp. Tox. 1
2.White mineral oil, petroleum	(CAS-No.) 8042-47-5 (EC-No.) 232-455-8	<= 30	Not classified

1. Kinematic viscosity at 40°C: 10-18 mm²/s

2. Kinematic viscosity at 40°C: 60-71,5 mm²/s

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : If you feel unwell, seek medical advice (show directions for use or safety data sheet if possible).
- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing;
Give oxygen or artificial respiration if necessary;
If you feel unwell, seek medical advice
- First-aid measures after skin contact : Wash skin with plenty of water and take off contaminated clothing;
If skin irritation or rash occurs: Get medical advice/attention;
Wash contaminated clothing before reuse
- First-aid measures after eye contact : Rinse cautiously with water for several minutes while holding the eyelids wide open;
Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
- First-aid measures after ingestion : If swallowed, rinse mouth;
Do not induce vomiting;
Never give anything by mouth to an unconscious person;
If you feel unwell, seek medical advice;

4.2. Most important symptoms and effects, both acute and delayed

No additional information available

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Foam, carbon dioxide, dry chemical powder
- Unsuitable extinguishing media : Water jet.

5.2. Special hazards arising from the substance or mixture

- Hazardous decomposition products in case of fire : On burning, carbon monoxide, carbon dioxide, various hydrocarbons and soot can be formed.

5.3. Advice for firefighters

- Precautionary measures fire : Ensure adequate ventilation, especially in confined areas. Keep container tightly closed and away from heat, sparks and flame. Eliminate every possible source of ignition.
- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
- Other information : Cool tanks/drums with water spray/remove them into safety. Evacuate personnel to a safe area. Stay upwind/keep distance from source. Move containers from fire area if it can be done without personal risk.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Emergency procedures : Ventilate spillage area. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
- Emergency procedures : Ensure adequate ventilation, especially in confined areas;No flames, no sparks. Eliminate all sources of ignition. Stop leak if safe to do so. Evacuate unnecessary personnel

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6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams; Contain large spillage with sand or earth; Contact waste disposal services
- Methods for cleaning up : On soil:
All kind of ignition sources should be removed. Contain spilled liquid with sand, earth or other suitable absorbents. Recover free liquid by pumping. Dispose of according to local regulations.
On water:
Confine the spillage. Remove from surface by skimming or suitable absorbents. Notify local authorities according to regulations
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Keep general measures applied for normal operations with lubricants.
Keep away from radiant heat and open flame.
Avoid contact with skin and eyes. Avoid prolonged breathing of oil vapours or mists.
Ensure washing facilities after working hours and before breaks. Take off contaminated or oil-soaked clothing, wash with warm water and soap.
When using do not eat, drink or smoke. Avoid splashing the product.
- Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Storage facilities must comply with regulations for storing of flammable liquids.
Store in dry, well ventilated place in original, closed containers.
Keep away from radiant heat, open flame and strong oxidizing agents.
Storage temperature: max. 40 °C

7.3. Specific end use(s)

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

White mineral oil, petroleum (8042-47-5)		
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	5 mg/m ³ (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed-respirable fraction)
Latvia	OEL TWA (mg/m ³)	5 mg/m ³
Switzerland	MAK (mg/m ³)	5 mg/m ³ (inhalable dust)

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station. Remove all sources of ignition. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure

Hand protection:

Oil resistant gloves (EN 374, Breakthrough time 480 min) (e.g. nitrile rubber – minimal thickness 0.33 mm).

Note: Manufacturer's directions for use and the conditions of application should be observed.

Eye protection:

Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

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Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Colourless, clear
Odour	: Odourless
Odour threshold	: No data available
pH	: Not applicable
Relative evaporation rate (butylacetate=1)	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: typ. 200 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not flammable
Vapour pressure	: Negligible
Relative vapour density at 20 °C	: No data available
Density	: 0.843 - 0.883 mg/cm ³
Solubility	: Practically insoluble in water; Solubility in other solvents: gasoline, kerosene, toluene, etc.
Log Pow	: > 6
Viscosity, kinematic	: typ. 22 mm ² /s
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: Not an explosive
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

10.5. Incompatible materials

Strong oxidizing agents

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

White mineral oil, petroleum (8042-47-5)

LD50 oral rat	> 5000 mg/kg
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Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified

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Germ cell mutagenicity : Not classified
 Carcinogenicity : Not classified
 Reproductive toxicity : Not classified

STOT-single exposure : Not classified
 STOT-repeated exposure : Not classified
 Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
 Acute aquatic toxicity : Not classified
 Chronic aquatic toxicity : Not classified

White mineral oil, petroleum (8042-47-5)

LC50 fish	> 10000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus)
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12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

White mineral oil, petroleum (8042-47-5)

Log Pow	> 6
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12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
 Product/Packaging disposal recommendations : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.2. UN proper shipping name				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
No supplementary information available				

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14.6. Special precautions for user

- Overland transport
Not applicable
- Transport by sea
Not applicable
- Air transport
Not applicable
- Inland waterway transport
Not applicable
- Rail transport
Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

No REACH Annex XVII restrictions
OVIPHYT is not on the REACH Candidate List
OVIPHYT is not on the REACH Annex XIV List
Directive 2012/18/EU (SEVESO III)

15.1.2. National regulations

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on the Canadian DSL (Domestic Substances List)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on Turkish inventory of chemical
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Germany

Reference to AwSV : Water hazard class (WGK) 1, low hazard to waters (Classification according to AwSV; ID No. 434)
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : White mineral oil, petroleum is listed
SZW-lijst van mutagene stoffen : White mineral oil, petroleum is listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Issue date : 07-June-2018
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Full text of H- and EUH-phrases

H304 : May be fatal if swallowed and enters airways.

Key or legend to abbreviations and acronyms used in the safety data sheet

ADR : European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMDG : International Maritime Dangerous Goods
IATA : International Air Transport Association
ADN : European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterway
RID : Regulations Concerning the International Carriage of Dangerous Goods by Rail
PBT : Persistent, Bioaccumulative and Toxic
vPvB : Very Persistent and Very Bioaccumulative
DNEL : Derived No Effect Level
PNEC : Predicted No Effect Concentration
LC50 : Lethal Concentration 50
LD50 : Lethal Dose 50
EC50 : Effective Concentration 50
TWA : Time Weighted Average
STEL : Short Term Exposure Limit

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

ENV



山东德朗能新能源科技有限公司 DLG (SHANDONG) ENEGY TECHNOLOGY CO., LTD.

制定 Prepared

审核 Checked

核准 Approved

产品规格书 PRODUCT SPECIFICATION

版本号 Document No.

QA-TDD-PRA-0005 A.3

日期 Date

2018-08-10

产品规格书

Product Specification

锂离子电池 (通用)

Lithium Ion Battery

型号 (Model) : NCM14500-085



山东德朗能新能源科技有限公司

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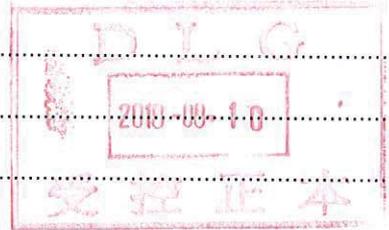
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1. 基本信息 (General Information)

1.1 适用范围 (Scope)

本规格书适用于山东德朗能新能源科技有限公司生产的锂离子电池。

This specification shall be applied to Lithium ion rechargeable battery cell supplied by DLG(Shandong) Energy Technology Co., Ltd.

1.2 产品类型 (Product classification)

圆柱型锂离子电池

Cylindrical Battery

1.3 产品名称 (Model name)

NCM14500-085

2. 标准规格 (Nominal Specification)

技术参数 Technical Parameters	规格 Specification
2.1 标称容量 Nominal Capacity	850mAh (0.2C, 2.75V 放电) 850mAh (0.2C, 2.75V discharge)
2.2 最小容量 Minimum Capacity	850mAh (0.2C, 2.75V 放电) 850mAh (0.2C, 2.75V discharge)
2.3 标称能量 Nominal Energy	3.06Wh (0.2C, 2.75V 放电) 3.06Wh (0.2C, 2.75V discharge)
2.4 标称电压 Nominal Voltage	3.6V (0.2C, 2.75V 放电) 3.6V (0.2C, 2.75V discharge)
2.5 标准充电 Standard Charge	方法: 恒流恒压 Method: CC-CV
	充电电压: 4.2V Charging Voltage: 4.2V
	充电电流: 0.5C (425mA) Charging Current: 0.5C (425mA)

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	截止电流: 10mA Cut-off Current: 10mA
2.6 最大充电电流 Maximum Charge Current	1C (850mA)
2.7 标准放电 Standard Discharge	方法: 恒流 Method: CC
	放电终止电压: 2.75V Discharge Cut-off Voltage: 2.75V
	放电电流: 0.2C (170mA) Discharging Current: 0.2C (170mA)
2.8 最大放电电流 Maximum Discharge Current	2C (1700mA), 可用于持续放电 2C (1700mA), for continuous discharge
2.9 重量 Weight	21±2.0g
2.10 使用温度, 充电 Operating Temperature, Charge	0~45°C
2.11 使用温度, 放电 Operating Temperature, Discharge	-20~60°C
2.12 保存温度 Storage Temperature	一个月 (1 month): -20~60°C 三个月 (3 months): -20~45°C 一年 (1 year): -20~25°C

3.外观及尺寸 (Appearance and Dimension)

3.1 外观 (Appearance)

不得有严重的划伤、生锈、变色或者漏液等这些可能会造成电池外观不良的现象。

There shall be no such as deep scratch, rust, discoloration or leakage, which may adversely affect the commercial value of the cell.

3.2 尺寸 (Dimension)

直径 (Diameter): 14.10±0.20mm (最大值 Max.14.30mm)

高度 (Height) : 48.50±0.3mm (最大值 Max.48.80mm)



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4.性能规格 (Performance Specification)

4.1 标准测试条件 (Standard test condition)

4.1.1 标准充电 (Standard Charge)

“标准充电”的意思是在 $25\pm 2^{\circ}\text{C}$ 下以 0.5C (425mA) 恒流恒压充电至 4.2V ，截止电流为 10mA 。

“Standard Charge” means charging the cell with charge current of 0.5C (425mA) and constant voltage 4.2V at $25\pm 2^{\circ}\text{C}$, 10mA cut-off.

4.1.2 标准放电 (Standard Discharge)

“标准放电”的意思是在 $25\pm 2^{\circ}\text{C}$ 以 0.2C (170mA) 放电至 2.75V 。

“Standard Discharge” means discharging the cell with discharge current of 0.2C (170mA) at $25\pm 2^{\circ}\text{C}$, 2.75V cut-off.

4.1.3 测试环境 (Testing Environment)

除非特别要求，本文件所有的测试均在 $25^{\circ}\text{C}\pm 2^{\circ}\text{C}$ 环境下进行：

Unless otherwise specified, all tests stated in this document shall be performed at $25^{\circ}\text{C}\pm 2^{\circ}\text{C}$.

4.2 电规格 (Electrical Specification)

项目 Item	测试条件 Test Condition	规格 Specification
4.2.1 交流内阻 Initial AC Impedance	交流四线法 (1kHz) 测定。 The cell impedance shall be measured by AC method (1kHz).	$70\text{m}\Omega$ 或以下 $70\text{m}\Omega$ or less
4.2.2 额定容量 Rated capacity	标准充电后，标准放电 Standard charge and discharge	850mAh
4.2.3 开路电压 Open circuit voltage	出货后 1 周以内测定。 Voltage within 1 week after delivery	3.58V 或以上 3.58V or more
4.2.4 循环寿命 (0.5/1C) Cycle Life (0.5C/1C)	0.5C 充电: $0.5\text{C}=425\text{mA}$ 恒流充电至 4.20V ; 然后 4.2V 恒压充电至电流小于 10mA 。 0.5C charge: $0.5\text{C}=425\text{mA}$ constant current charge to 4.20V , then constant voltage (CV) charge at 4.20V until current taper to $<10\text{mA}$. 1C 放电: $1\text{C}=850\text{mA}$ 恒流放电至 2.75V 。 1C discharge: $1\text{C}=850\text{mA}$ constant current discharge to 2.75V 共进行充放电循环 300 次。 300 cycles of 0.5C charge and 1C discharge.	300 次放电容量/首次放电容量 $\geq 80\%$ The ratio of the 300 th discharge capacity and the first cycle $\geq 80\%$



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4.3 温度特性 (Temperature-rate Performance)

项目Item	测试条件Test Condition	规格Specification
4.3.1 温度特性 Temperature-rate performance	1) 常温下标准充电 Standard CH at R.T 将测试电池放入-20°C恒温箱, 搁置4小时 Keep batteries in a icebox with ambient temperature of -20°C for 4 hours. -20°C下0.2C放电至终止电压, 计算放电容量与标称容量的百分比。 DCH at 0.2C to the end of DCH voltage at -20°C, Calculate the capacity ratio with the nominal capacity.	容量百分比 ≥50% Capacity ratio ≥50%
	2) 常温下标准充电 Standard CH at R.T 将测试电池放入0°C恒温箱, 搁置4小时 Keep batteries in a icebox with ambient temperature of 0°C for 4 hours. 0°C下0.5C放电至终止电压, 计算与标称容量的百分比。 DCH at 0.5C to the end of DCH voltage at 0°C; Calculate the capacity ratio with the nominal capacity.	容量百分比 ≥75% Capacity ratio ≥75%
	3) 常温下标准充电 Standard CH at RT 将测试电池放入60°C恒温箱, 搁置4小时 Keep batteries in a icebox with ambient temperature of 60°C for 4 hours. 60°C下标准放电至终止电压, 计算与标称容量的百分比。 DCH at 0.5C to the end of DCH voltage at 60°C; Calculate the capacity ratio with the nominal capacity.	容量百分比 ≥95% Capacity ratio ≥95%



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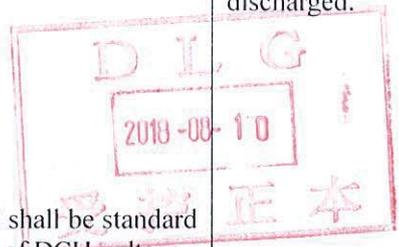
4.4 安全特性 (Safety performance)

项目 Item	测试条件 Test Condition	规格 Specification
4.4.1 过放电 Over discharge Test	标准充电后, 接50Ω电阻负荷, 24小时连续放电。 The cell shall be standard charged, and discharged with 50Ω resistor load for 24 hours.	不起火, 不爆炸, 不漏液 No fire, No explode, No leakage
4.4.2 过充电 Over charge	标准充电后, 以850mA的电流, 10V连续充电2.5小时。 After standard charged, the cell shall be charged for 2.5 hours using 10V, 850mA power supply.	不起火, 不爆炸 No fire, No explode
4.4.3 外部短路测试 External Short-Circuiting Test	标准充电后电池正负极间接50mΩ以下内阻电线短路1小时以上。 The cell shall be standard charged. The plus and minus terminals of the cell shall be short circuited with a wire having 50mΩ or less resistance, and left for 1 hour.	不起火, 不爆炸 No fire, No explode
4.4.4 跌落测试 Drop Test	标准充电后, 电池从100cm高处落下来到硬木上, X、Y、Z面各落一次。 The cell shall be standard charged and then dropped onto hard wood from the height of 100 cm in 3 directions X, Y, and Z once at each direction.	不起火, 不爆炸, 不漏液 No fire, No explode, No leakage
4.4.5 加热测试 Heating Test	将充满电的电池放在重力对流或循环空气的烘箱中进行加热, 烘箱的温度以每分5±2°C的速率上升到130±2°C后保温30分钟。 The charged batteries are heated in a gravity convection or circulating air oven. The temperature of the oven is to be raised at a rate of 5±2°C per minute. The oven is to remain for 30 minutes at 130±2°C before the test is discontinued.	不起火, 不爆炸 No fire, No explode

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<p>4.4.6冲击试验 Impact test</p>	<p>将充满电的电池水平放置在一个平面上，将直径15.8mm的钢棒交叉放在电池的上面，使用9.1kg的重锤从610mm自由落下冲击电池。</p> <p>A test sample battery is to be placed on a flat surface. A 5/8 inch (15.8mm) diameter bar is to be placed across the center of the sample. A 20 pound (9.1kg) weight is to be dropped from a height of 24 inch (610mm) onto the sample.</p>	<p>不起火，不爆炸 No fire, No explode</p>
<p>4.4.7挤压实验 Crush test</p>	<p>将电池放在两个平面之间，使用直径32mm的圆柱体施加压力，压强持续增加到17.2MPa，压力达到13kN后释放压力。</p> <p>The force for the crushing is to be applied by a hydraulic ram with a 1.25 inch (32mm) diameter piston. The crushing is to be continued until a pressure reading of 17.2MPa is reached on the hydraulic ram, applied force of 13kN.</p>	<p>不起火，不爆炸。 No fire, nor explosion</p>
<p>4.4.8振动 Vibration</p>	<p>标准充电，按以下条件振动</p> <p>振动波 正弦波</p> <p>振动频率 16.7Hz</p> <p>振动时间 1小时</p> <p>振动方向 任意</p> <p>振幅 1mm</p> <p>振动后，电池进行标准充电，0.5C放电。</p> <p>A standard charged cell shall be vibrated as specified hereunder.</p> <p>Vibration waveform: sinusoidal.</p> <p>Frequency: 16.7Hz.</p> <p>Test time: 1 hours.</p> <p>Vibration direction: arbitrary.</p> <p>Total amplitude: 1mm.</p> <p>After vibration application, the cell shall be standard CH, and then 0.5C DCH.to the end of DCH voltage.</p>	<p>无变形、破裂、发火； 可继续充放电 No explosion and flame, no deformation. Possible to be charged and discharged.</p>



5. 电池焊接部位 (Welding allowable part on a cell)

电池侧壁不可焊接。

Welding is not allowed on cell side wall.

6. 绝缘 (Insulation)

电池罐上端（正极盖帽侧）及侧面用绝缘材料包覆。

Can top face (positive terminal) and side is covered with insulation tubing.

7. 出货前电池充电态 (Charge State of Battery before shipment)

30%带电态。

Approximately 30% state of charge.

8. 储存 (Storage)

请将电池存放在低温（建议低于 20°C）、低湿、无粉尘、无腐蚀性气体的环境中。

Store the battery at low temperature (below 20°C is recommended), low humidity, no dust and no corrosive gas atmosphere.

9. 保证 (Warranty)

电池出货 1 年内由于本公司制造原因导致不良发生，本公司将无偿修理或更换新电池。

Our corporation will repair the cells or batteries for free or replace with new product if there is any fault which is due to material or workmanship during one year from the date of delivery.

10 锂离子二次电池的使用操作禁止及注意事项

Handling Precaution and Prohibitions of Lithium Ion Rechargeable Cells and Batteries

10.1 危险 (Danger)

10.1.1 防止电气误用 (Electrical misusage)

必须使用专用充电器。

Use dedicated charger.

电池只能用于指定的用途。

Use or charge the battery only in the dedicated application.

不要对电池反向充电。

Don't charge the battery reversely.



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10.1.2 防止环境误用 (Environmental misuse)

请勿将电池靠近火源或热源。

Don't leave the battery near the fire or a heated source.

不要将电池投入火中。

Don't throw the battery into the fire.

不要在温度超过 60°C 的地方使用电池或对其充电。

Don't charge or use the battery in a car or similar place where inside of temperature may be over 60°C.

不要将电池沾湿，或将其浸泡或投进水或海水中。

Don't immerse, throw, wet the battery in water / seawater.

10.1.3 其他 (Others)

不要把电池储存在装有钥匙、项链、发夹、硬币、金属物体的口袋中，或与螺丝包在一起。

Don't store the battery in a pocket or a bag together with metallic objects such as keys, necklaces, hairpins, coins, or screws.

不要用金属导体短路电池正负极。

Don't short circuit (+) and (-) terminals with metallic object intentionally.

不要用烙铁等对电池进行局部加热。

Don't heat partial area of the battery with heated objects such as soldering iron.

不要用重物捶打电池。

Don't hit with heavy objects such as a hammer, weight.

不要踩踏电池，或将其扔或掉在硬地板上，以避免机械冲击。

Don't step on the battery and throw or drop the battery on the hard floor to avoid mechanical shock.

不要对电池包括保护电路进行拆卸或改装。

Don't disassemble the battery or modify the battery design including electric circuit.

不要使用严重扭曲或变形的电池。

Don't use seriously scared or deformed battery.

不要把电池放进微波炉、烘干机或高压容器中。

Don't put the battery into a microwave oven, dryer or high-pressure container.

不要与其他制造商生产的电池、不同类型或不同规格的电池(如干电池、镍氢电池或镍镉电池)一同使用或组合。

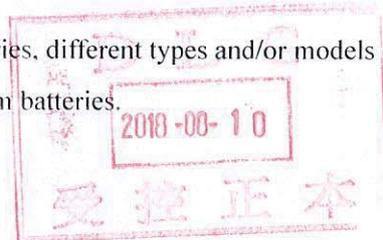
Don't use or assemble the battery with other makers' batteries, different types and/or models of batteries such as dry batteries, nickel-metal hydride batteries, or nickel-cadmium batteries.

10.2 警告 (Warning)

不要将新旧电池混用或组装。

Don't use or assemble old and new batteries together.

若在规定时间内充电仍未完成，要停止电池充电。



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Stop charging the battery if charging isn't completed within the specified time.

在使用、充电或储存过程中，若发现电池发热异常、变色、变形或其他反常情况，请停止使用电池。

Stop using the battery if the battery becomes abnormally hot, discoloration, deformation, or abnormal conditions is detected during use, charge, or storage.

若电池漏液或产生臭味，请将其立刻远离火源。

Keep away from fire immediately when leakage or foul odors are detected.

如果液体粘到皮肤或衣服上，立即用清水冲洗。若液体进入到眼睛，不要揉擦，用清水冲洗并马上就医。

If liquid leaks onto your skin or cloths, wash well with fresh water immediately. If liquid leaking from the battery gets into your eyes, don't rub your eyes and wash them with clean water and go to see a doctor immediately.

若电池端子脏污，请用干布擦拭后再使用电池。

If the terminals of the battery become dirty, wipe with a dry cloth before using the battery.

电池在以下温度范围内使用。不要超出这个范围。

The battery can be used within the following temperature ranges. Don't exceed these ranges.

充电温度范围：0~45°C

Charge temperature ranges: 0~45°C

放电温度范围：-20~60°C

Discharge Temperature ranges: -20~60°C

储存电池温度不得高于 60°C

Store the battery at temperature below 60°C

10.3 注意 (Caution)

10.3.1 防止电气误用 (Electrical misuse)

电池必须以恒流恒压 (CC/CV) 模式充电。

Battery must be charged with constant current-constant voltage (CC/CV).

充电电流必须控制在电池规格书规定值内。

Charge current must be controlled by specified value in Cell specification.

放电电流必须控制在电池规格书指定范围内。放电截止电压不得低于 2.75V/只。

Discharge current must be controlled by specified value in Cell's specification. Cut-off voltage of discharging must be over 2.75V/cell.

请将电池放在远离孩童的地方，避免发生吞食意外。若是年幼者使用电池，其监护人应为其解释适当的处理方法和预防措施。

Keep the battery away from babies and children to avoid any accidents such as swallow. If younger children use the battery, their guardians should explain the proper handling method and precaution before using.

在使用电池前，请务必阅读用户手册和处理防范措施。

Before using the battery, be sure to read the user's manual and precaution of it's handling.

在使用充电器前，请务必阅读充电器用户手册。

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Before using charger, be sure to read the user's manual of the charger.

在安装和移除工作态的电池前，请务必阅读用户手册。

Before installing and removing the battery from application, be sure to read user's manual of the application.

若电池使用时间比平常短，请更换。废弃电池前，用绝缘胶带缠住电池终端。

Replace the battery when using time of battery becomes much shorter than usual. Cover terminals with insulating tape before proper disposal.

若电池需要长期保存，电池应退出使用，存储在温度、湿度都较低的地方。

If the battery is needed to be stored for a long period, battery should be removed from the application and stored in a place where humidity and temperature are low.

电池在充电、使用和储存时，请将其远离带有静电的物体材料。

While the battery is charged, used and stored, keep it away from object materials with static electric chargers.

10.3.2 有关电池组在用电器具或充电器中的位置设计

Design of positioning the battery pack in application and charger

为了防止由高温引起的电池性能恶化，电池应放置在远离使用和充电过程中的发热区域。

To prevent the deterioration of the battery performance caused by heat, battery shall be positioned away from the area where heat is generated in the application and the charger.

如您需要技术和安全方面的帮助，请联系我们。

Please contact us when you need any help including safety concerns.



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